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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,677	12/13/2001	Kenneth L. Levy	P0502	9557

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DIGIMARC CORPORATION
9405 SW GEMINI DRIVE
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EXAMINER

POLTORAK, PIOTR

ART UNIT PAPER NUMBER

2134

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/017,677	Applicant(s) LEVY, KENNETH L.	
	Examiner Peter Poltorak	Art Unit 2134	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/04/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/03/06 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

Response to Amendment

1. Applicant's arguments have been carefully considered but they were not found persuasive.
2. As per claims 1-3 and 5-8 applicant states that the forensic digital watermark disclosed by Venkatesan does not enable to track a content signal to a receiver and argues that there is no reason to combine Fengghi's teaching to complement Venkatesan's watermark with this capability.

The examiner considered applicant's arguments but respectfully disagrees. The motivation to combine has been provided in paragraphs 21-22 in the last Office Action.

Additionally, the examiner points out that the limitation: "wherein the forensic digital watermark identifies a receiver to enable use of the forensic digital watermark to track the content signal to the receiver" is essentially an intended use limitation.

There is no actual limitation suggesting that the content signal is tracked to a receiver and implementation of Fengghi's teaching provides Vankatesan's invention with such a capability.

3. As per claim 10 applicant argues that Vankatesan and Fengghi do not to teach:

"wherein the forensic digital watermark identifies a receiver to enable use of the forensic digital watermark to track the content signal to the receiver, different receivers have different forensic digital watermarks, and the orientation is selected so that the orientation varies for different receivers.

The examiner carefully considered applicant's arguments but respectfully disagrees with applicant's conclusions. Implementing different keys corresponding to different receivers (authorities) as taught by Fengghi would map (identify) the watermark to the receiver. Also, the process of embedding watermarks in Vankatesan's invention involves pseudo-random number that defines a starting location in a protected objects in time, space or frequency the selected orientation vary for different receivers.

4. As per claims 19-20 applicant recites claim's 19 limitations that allegedly the art of record does not disclose. Because the limitations include a newly introduced limitation applicant's argument is addressed in the current rejection, below.
5. As per claims 9 and 18 applicant argues that "embedding the forensic digital watermark at an orientation that does not interfere with the digital watermark" was not addressed by art of record.

Applicant's arguments have been carefully considered but not found persuasive.

Provided reference aimed to disclose that embedding a plurality of watermarks is not novel. Also, even though utilizing an additional watermark in Vankatesan's invention would provide a better protection, any watermarks interference (including already existed watermark) would effectively defeat the purpose of the watermark protection.

6. As per 4 and 13 applicant argues that Venkatesan and Katayama do not suggest a "beginning frequency band alignment".

The examiner points out that even though Venkatesan addressed beginning of a watermark position, and frequency band alignment has been disclosed by Katayama in the previous Office Action, paragraph 34. Paragraph 35 provided motivation to combine the inventions.

7. Claims 1-20 have been examined.

Claim Rejections - 35 USC § 112

8. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention.

It is not clear whether it is content signals or the receiver that the forensic watermark identifies recited in claim 2 identifies. Given the limitations of the independent claim 1 for purposes of further examination the phrase is treated as though the forensic watermark identifies the receiver.

Claim Rejections - 35 USC § 103

9. Claims 1-3, 5-12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conover (U.S. Patent No. 6373960) in view of Venkatesan (U.S. Patent No. 6898706).

As per claims 1-3, 5-12, 14-17 and 19-20 Conover discloses receiving a media content signal, selecting an orientation for a forensic digital watermark signal to be embedded in the content signal and on embedding the forensic digital watermark signal at the selected orientation in the content signal (Conover, col. 7 line 32 – line 8 line 3). Conover's forensic digital watermark identifies a receiver to enable use of the watermark to track the content signal to the receiver (col. 14 lines 56-61).

10. Although an instance of embedding inherently corresponds to a time period of embedding the forensic digital watermark Conover does not disclose that the embedding applies a different orientation for different instances of embedding the forensic digital watermark and using keys in the embedding.

Venkatesan teaches embedding a different orientation for different instances of embedding the forensic digital watermark using keys (Venkatesan, col. 1-2 and col.13 lines 35-49). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to implement embedding a different orientation for different instances of embedding the forensic digital watermark using keys as taught by Venkatesan into Conover's invention given the benefit of better protection against potential attacks. **Col. 7 lines 15-21**

Also, Venkatesan's watermark keys derived using pseudo-random number generator define a starting location in a protected objects in time, space or frequency (Venkatesan, col.13 lines 35-49) and as a result the orientation is random for different receivers and for each instance of embedding the digital watermark such that the orientation of the digital watermark varies for content signals processed in the receiver that the forensic watermark identifies, the orientation specifies random beginning time/frequency/spatial alignment of the content signal.

11. As per claims 9 and 18 Conover in view of Venkatesan do not explicitly teach attempting to detect a digital watermark in the content signal, and in response to detecting a digital watermark, embedding the forensic digital watermark at an orientation that does not interfere with the digital watermark. However, the limitation is implicit; Conover's aims to unambiguously identify the equipment used in recording an unauthorized copy of content (col. 5 lines 44-47) based on a watermark embedded by the equipment and it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to detect a digital watermark in the content signal, and in response to detecting a digital watermark, embedding the forensic digital watermark at an orientation that does not interfere with the digital watermark. One of ordinary skill in the art would have been motivated to perform such a modification in order to identify each of the equipment used in recording an unauthorized copy unambiguously without altering previously recorded forensic data.

12. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conover (U.S. Patent No. 6373960) in view of Venkatesan (U.S. Patent No. 6898706) and further in view of (Katayama U.S. Pub. No. 20020027994). Conover in view of Venkatesan teach the method of digital watermarking that embeds a digital watermark signal in a media content signal at the selected orientation in the frequency domain, wherein the orientation specifies random beginning frequency alignment of the content signal.

13. Conover in view of Venkatesan do not teach that the orientation specifies random frequency bands.

Katayama teach the orientation that specifies random frequency bands (Katayama [22]). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to configure Conover in view of Venkatesan invention so that the orientation specifies random frequency bands as taught by Katayama. One of ordinary skill in the art would have been motivated to perform such a modification in order to place limits/restrictions on specific frequency bands.

14. Claims 1-3, 5-8, 10-12 and 14-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan (U.S. Patent No. 6898706) in view of Fegghi (Jalal Fegghi, Jalil Fegghi, Peter Williams, "Digital Certificates Applied Internet Security, 1999, ISBN: 0201309807).

Venkatesan teach an object protection using watermarks. Although the object is referred to as software Venkatesan teach that the invention encompasses audio or video files (Venkatesan, col. 5 lines 15-29 and 10 lines 1-15).

Venkatesan teach that the publisher of a given object provides the value of the watermark to a third-party watermarking authority (WA), along with an unwatermarked copy of an object (O). The WA then tests that particular copy to ascertain that it is free of watermarks. Once the WA has determined that this copy is watermark-free and has also received an appropriate certification from the publisher that the copy is not watermarked, the WA then embeds the watermark n times, each beginning at a starting location determined by a corresponding different one of the n keys, throughout the object in order to yield the watermarked object. All n keys are generated by the WA. These keys are generated once and will be universally used for, e.g., all objects, from whatever publisher or source, that are to be protected (Venkatesan, col. 13 lines 35-49). Each watermark key when used in conjunction with a given object necessitate an object dependent interpretation, e.g. specifying, in relative, (scaled) fashion, a starting location, in terms of a relative by address, in that object at which a corresponding watermark begins (Venkatesan, col. 13 lines 52-57). This reads on: receiving a media content signal, selecting an orientation for a forensic digital watermark signal to be embedded in the content signal and on embedding the forensic digital watermark signal at the selected orientation in the content signal.

Venkatesan teach that the Watermark Authority (receiver) uses pseudo-random number generator to derive all n watermark keys (Venkatesan, col. 1-2) that define a starting location in a protected objects (in time, space or frequency) through a spread sequence predicated on a random seed (Venkatesan, col.13 lines 35-49).

This reads on: the embedding applies a different orientation for different instances of embedding the forensic digital watermark and on an instance of embedding corresponding to a time period of embedding the forensic digital watermark.

15. Venkatesan do not disclose plurality of (watermark) authorities and as a result do not disclose that the forensic digital watermark embedded by using keys identifies a receiver to enable use of the watermark to track the content signal to the receiver and that different receivers have different watermarks.

Feghhi disclose a plurality of authorities (Feghhi, Structures between Multiple Certification Authorities", pg. 84). Each of the authorities taught by Feghhi has its unique key (public/private pair key to be exact, pg. 84 explicitly discloses authority's public key).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include a plurality of authorities in Feghhi's invention as taught by Feghhi. One of ordinary skill in the art would have been motivated to perform such a modification in order to make Feghhi's invention scalable.

Similarly to Venkatesan the authority in Feghhi's invention utilizes a key. This key is a unique key that derives an object (digital certificate) uniquely identifying the authority (Feghhi, Fig. 3-2, pg. 67).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use an authority's key in such a way that an object created with the authority key identifies the authority (the receiver) as taught by Feghhi One of

ordinary skill in the art would have been motivated to perform such a modification in order to identify and validate the particular authority.

As discussed above watermark keys specify the location of forensic digital watermarks in Venkatesan's invention. Thus, using different keys for different receivers as taught by Feghhi would result in different forensic digital watermarks, and the selected orientations would vary for different receivers, and as a result the forensic digital watermark would identify a particular receiver.

Also, Venkatesan's watermark keys derived using pseudo-random number generator define a starting location in a protected objects in time, space or frequency (Venkatesan, col.13 lines 35-49) and as a result the orientation is random for different receivers and for each instance of embedding the digital watermark such that the orientation of the digital watermark varies for content signals processed in the receiver that the forensic watermark identifies, the orientation specifies random beginning time/frequency/spatial alignment of the content signal.

16. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan (U.S. Patent No. 6898706) in view of Feghhi (Jalal Feghhi, Peter Williams, "Digital Certificates Applied Internet Security, 1999, ISBN: 0201309807) and further in view of (Katayama et al. U.S. Pub. No. 20020027994).

Venkatesan in view of Feghhi teach the method of digital watermarking that embeds a digital watermark signal in a media content signal at the selected orientation in the frequency domain, wherein the orientation specifies random beginning frequency alignment of the content signal.

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17. Venkatesan in view of Feghhi do not teach that the orientation specifies random frequency bands.

Katayama teach the orientation that specifies random frequency bands (Katayama [22]). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to configure Venkatesan in view of Feghhi invention so that the orientation specifies random frequency bands as taught by Katayama. One of ordinary skill in the art would have been motivated to perform such a modification in order to place limits/restrictions on specific frequency bands.

18. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venkatesan (U.S. Patent No. 6898706) in view of Feghhi (Jalal Feghhi, Peter Williams, "Digital Certificates Applied Internet Security, 1999, ISBN: 0201309807) and further in view of (U.S. Patent No. 6700989) in view of Hashimoto (U.S. Pub. 20010009581).

Venkatesan in view of *Feghhi* teach the forensic digital watermarks as discussed above.

19. *Venkatesan* in view of *Feghhi* do not explicitly teach attempting to detect a digital watermark in the content signal, and in response to detecting a digital watermark, embedding the forensic digital watermark at an orientation that does not interfere with the digital watermark.

Hashimoto teach detecting digital watermark (first watermark) in the content signal and embedding the forensic digital watermark (second watermark) (Hashimoto, Abstract). It would have been obvious to one of ordinary skill in the art at the time of

applicant's invention to detect a digital watermark in the content signal, and in response to detecting a digital watermark, embedding the forensic digital watermark given the benefit of increased content protection.


Embedding the forensic digital watermark at an orientation that does not interfere with the digital watermark would be implicit given the fact that interference could alter watermarks, effectively defeating the purpose of the watermark protection.

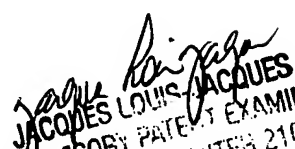
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Poltorak whose telephone number is (571) 272-3840. The examiner can normally be reached Monday through Thursday from 9:00 a.m. to 4:00 p.m. and alternate Fridays from 9:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis Jacques can be reached on (571)272-6962. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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